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Although drug-related problems are a major source of morbidity, the literature provides little information regarding utilization of ambulatory care resources for drug-related problems.
OBJECTIVE: The purpose of this study was to examine the nature and extent of the use of ambulatory care services due to adverse effects of medications in the United States.
METHODS: This study analyzed patient records abstracted from the 1996 National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey. Patient visits resulting in principal diagnoses of adverse effects of medications (ICD-9-CM E-code 930.00–947.9) were analyzed. The resource utilization and demographics associated with these visits were examined using descriptive statistics.
RESULTS: During 1996, 0.31% of the visits to ambulatory settings were due to adverse effects of medications, representing an estimated 2.73 million visits per year or 1.03 visits per 100 persons. The majority (87.64%) were office-based visits. Emergency and outpatient department visits were 7.97% and 4.39%, respectively. Visit rates for drug-related problems were highest in whites, females, patients over 74 years old, and patients in the West. The therapeutic agents most often responsible for these visits were antibiotics (20.36%), cardiovascular drugs (10.66%), and hormones and synthetic substitutes (7.68%). The most frequently cited primary reasons for the visits were skin rash (9.89%), cough (8.56%), and adverse effect of medications (6.52%). Other than blood pressure and blood tests, few diagnostic or screening services were utilized for the patients. The medications most frequently prescribed to treat these problems were corticosteroids, antihistamines, and drugs for GI disorders. The majority (81.54%) of the drug-related visits included instructions for a return visit and 1.40% of the drug-related visits resulted in hospital admission.
CONCLUSION: Utilization patterns due to drug-related problems can pose a significant burden on ambulatory care resources. Pharmaceutical care can play an important role in reducing these problems.

PP08

AN EMPIRICAL ANALYSIS ON AMBULATORY CARE UTILIZATION: APPLICATION OF A COUNT DATA MODEL

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Very little has been done to model the utilization of ambulatory care empirically.
OBJECTIVE: The purpose of this study is to estimate the expected frequency of outpatient visits from the sociodemographic characteristics, health status, and comorbidities.
METHOD: A randomized sample of 6000 southern California patients with chronic diseases in a managed care environment were surveyed longitudinally during 1992–1995. Simultaneously, healthcare utilization data were collected from electronic data files. An expected frequency count data model was developed by Poisson regression. The frequency of outpatient visits from baseline was used as a lagged dependent variable in the equation. Sociodemographic variables were used as covariates. Model overdispersion was corrected by appropriate power transformation. Model validity was also compared with the ordinary least square model and the general linear model.
RESULTS: More than 75% of the sample had five or more outpatient visits during demonstration period with a mean of 15 visits per patient. The model showed that age, gender, and baseline visit were significant predictors ($p < 0.0001$) of future outpatient visit. Patient's chronic disease status along with three of the eight SF-36 health status domains measured at baseline (bodily pain, general health, role limitation due to physical problem) were also statistically significant ($p < 0.005$) in explaining the variations in future outpatient visits. Asian patients were less likely to use ambulatory care facilities than other races and female patients experienced greater utilization than males. Income and employment status significantly affected outpatient utilization. The count data model was superior to the other models.
CONCLUSION: This study provided a useful alternative empirical method to model count data in ambulatory care.

PP09

USING OUTCOMES RESEARCH TO DEMONSTRATE QUALITY IMPROVEMENT FOR NCQA ACCREDITATION: A CASE STUDY

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NCQA accreditation is a "Good Housekeeping Seal" for MCOs to evaluate how well a health plan manages its clinical and administrative systems in continuously improving healthcare for its members. A key standard in NCQA accreditation is demonstrating quality improvement. This case study outlines how manufacturer-funded outcomes research was used by an MCO for the NCQA quality improvement standard.
OBJECTIVE: A national MCO and its behavioral health carve-out sought to understand current prescribing practices by its primary care physicians and psychiatrists for the patient population receiving antidepressant prescriptions.
METHODS: Cross-sectional retrospective analyses were conducted using the prescription, diagnosis, and eligibility databases of the national MCO and its behavioral health subsidiary. The population included adults who received at least one antidepressant prescription in mid-1995.
RESULTS: By prescriber type, 77% of patients who received an antidepressant prescription from a psychiatrist also had a depression diagnosis, compared to only 32% of patients who were prescribed an antidepressant by a primary care physician. Overall, only 34% of patients treated with antidepressant also received a recorded depression diagnosis.
CONCLUSIONS: Based on these findings, the MCO and

its behavioral health carve-out implemented interventions directed at primary care physicians and psychiatrists to improve the recognition and treatment of depression. A collaborative follow-up study is now under way to compare more recent data to the original baseline findings to demonstrate improvement in the quality of care provided to antidepressant patients.

PP010

UNDERSTANDING THE PROCESS AND ROLE OF TECHNOLOGY ASSESSMENT IN LARGE HEALTH MAINTENANCE ORGANIZATIONS

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Little information exists regarding how health maintenance organizations (HMOs) analyze medical technologies using technology assessment (TA).
OBJECTIVE: To describe characteristics, processes, and roles of TA in large HMOs.
METHODS: The target survey population was large HMOs (enrollments >100,000). One hundred and sixty-five HMOs met this criterion. Corporate consolidation of HMOs reduced the cohort to 96 HMOs, representing 77% of total US covered lives. A questionnaire was developed and field tested. The survey was mailed to preidentified HMO contacts in early 1998.
RESULTS: Survey response rate was 43%. Of respondents, 85% (35/41) routinely conduct TA. More than 50% of the time, TA in HMOs includes representatives from medical, pharmacy, quality improvement, legal, and benefits functions. TA is initiated by HMO medical affairs departments (>70% of the time). HMOs conduct TA on equipment, procedures, devices, and several types of drugs. All respondents conduct TA either at time of product introduction, adoption into practice, or upon FDA approval. HMOs conduct TA again for one of three reasons: competitive alternatives, new indication, or replacement. Legislative, societal, and accreditation demands can influence HMOs to conduct TA. HMOs consider randomized controlled trials, published in peer reviewed journals as the most desirable data source. Other data are used, but were rated less favorably. Lack of timely data can limit TA. Over 90% of respondents seek outside assistance for TA. HMOs typically conduct TA to determine benefits coverage policy.
CONCLUSION: Most HMOs surveyed conduct TA. Medical staff influence TA in HMOs. HMOs perceive randomized controlled trials as more desirable than other data. Outcomes data are often not available at time of TA. HMOs use TA consultants as one source of information.

PP011

NEW METHODS OF DATA COLLECTION IN THE COMMUNITY-BASED PHYSICIAN SETTING: OVERVIEW OF THE PROCESS AND PRESENTATION OF DESCRIPTIVE STATISTICS

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OBJECTIVE: Cost-effective data collection is a critical component of pharmacoeconomic and outcomes studies, and is often a key limiter of study design and scope. The objectives of this presentation are to: 1) present a new method of clinical data collection in the community-based physician setting, and 2) present statistics on data collected in 1998.
METHODS: This presentation focuses on collecting clinical information in the community-based physician setting. This information has broad utility, including support of the conduct of pharmacoeconomic and outcomes studies. The data collection process is built around community-based physicians' preferred means of documenting patient encounters—dictation and transcription. The data collection process begins with templated physician dictation to support discrete data element capture. New transcription technologies that provide for discrete data element capture, in addition to free text typing, are used to document the encounter and capture the data elements. Back-end data scrubbing, natural language encoding, and data mapping are then used to transform physician natural language into useable data. Techniques for validating data through source document sampling will also be presented.
RESULTS: Data collected from cardiologists through September 1998 will be presented. Preliminary statistics include the following: 5865 coronary artery disease patients were seen; 54.1% of these patients were on a statin. Of these patients 42.1% were on atorvastatin, 36.7% were on simvastatin, 11.2% were on pravastatin, and 10.0% were on other statins. Switching patterns between statins will be presented. Common switching reasons include formulary changes, ineffectiveness and side effects.
CONCLUSIONS: Existing clinical documentation processes can be leveraged to collect more detailed and meaningful information for pharmacoeconomics and outcomes studies than traditional, transaction-based information sources.

PP012

EFFECT OF PLAN CHARACTERISTICS ON THE COST OF PHARMACEUTICALS IN A PRIVATE THIRD-PARTY PRESCRIPTION PROGRAM

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OBJECTIVES: Using prescription claims data, the primary objective of this study was to evaluate whether utilization differed among various plan characteristics after controlling for covariates. The secondary objective was to examine the relationships among plan characteristics and cost of pharmaceuticals within various therapeutic categories.
METHODS: Data were obtained from 1996 prescription claims information for the commercial population administered by a Rhode Island–based PBM. There were 29,211 subscribers representing 64,815 enrollees eligible